

Listing of Claims

Please amend claims 1, 20, 29, 41, 42, 50, 63 and 64, and please add new claims 65-67, as shown below. This listing of claims will replace all prior versions and listings of claims in the instant application:

1. (Currently Amended) A fusion protein expression cassette, comprising a promoter operably linked to a nucleic acid molecule that encodes an indolicidin analog fusion protein, wherein the encoded fusion protein comprises a structure of (indolicidin analog)-[(cleavage site)-(indolicidin analog)]_n, with *n* being an integer having a value between one and three, and wherein the indolicidin analogs retain at least 30% tryptophan and have antimicrobial activity.

2. (Original) The expression cassette according to claim 1 wherein said nucleic acid molecule also encodes a carrier protein.

3. (Cancelled)

4. (Previously Amended) The expression cassette according to any one of claims 1 or 2 wherein said cleavage site can be cleaved by low pH or by a reagent selected from the group consisting of cyanogen bromide, N-chlorosuccinimide, 2-(2-nitrophenylsulphenyl)-3-methyl-3'-bromoindolenine, hydroxylamine, *o*-iodosobenzoic acid, Factor Xa, Factor XIIa, thrombin, enterokinase, collagenase, *Staphylococcus aureus* V8 protease, endoproteinase Arg-C, endoproteinase Glu-C, endoproteinase Lys-C, and trypsin.

5 - 11 (Cancelled)

12. (Original) The expression cassette according to claim 2 wherein said carrier protein is less than 100 amino acid residues in length.

13. (Original) The expression cassette according to claim 2 wherein said carrier protein is a truncated cellulose binding domain of less than 100 amino acids.

14. (Cancelled)

15. (Previously Amended) The expression cassette according to any one of claims 1 or 2 wherein said promoter is selected from the group consisting of *lacP* promoter, *tacP* promoter, *trcP* promoter, *srpP* promoter, SP6 promoter, T7 promoter, *araP* promoter, *trpP* promoter, and λ promoter.

16. (Previously Amended) A recombinant host cell comprising the expression cassette according to any one of claims 1, 2, 12, or 13.

17. (Original) The recombinant host cell of claim 16 wherein said host cell is a yeast, fungi, bacterial or plant cell.

18. (Original) The recombinant host cell of claim 17 wherein said bacterial host cell is *Escherichia coli*.

19. (Cancelled)

E3
20. (Currently Amended) A method of producing a fusion protein that contains at least one indolicidin analog, comprising culturing the recombinant host cell of claim 16 under conditions and for a time sufficient to produce said fusion protein.

21 - 28 (Canceled)

E4
29. (Currently Amended) A multi-domain fusion protein expression cassette, comprising a promoter operably linked to a nucleic acid molecule that encodes a fusion protein, wherein the encoded fusion protein comprises a structure of [(cleavage site)-(indolicidin analog)-

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(cleavage site)-(anionic spacer peptide)]_n with *n* being an integer having a value between *n* 1 and 40, and wherein the indolicidin analogs retain at least 30% tryptophan and have antimicrobial activity.

30. (Canceled)

31. (Original) The expression cassette according to claim 29 wherein the promoter is selected from the group consisting of *lacP* promoter, *tacP* promoter, *trcP* promoter, *srpP* promoter, SP6 promoter, T7 promoter, *araP* promoter, *trpP* promoter, and λ promoter.

32. (Previously Amended) The expression cassette according to claim 55 wherein the carrier is selected from cellulose binding domain, glutathione-S-transferase, outer membrane protein F, β -galactosidase, protein A, or IgG-binding domain.

33 - 34 (Cancelled)

35. (Previously Amended) The expression cassette according to claim 55 wherein the carrier is less than 100 amino acid residues in length.

36. (Original) The expression cassette according to claim 35 wherein the carrier is a truncated cellulose binding domain.

37. (Original) The expression cassette according to claim 29 wherein the anionic spacer has no cysteine residue.

38 - 39 (Cancelled)

40. (Previously Amended) The expression cassette according to claim 29 wherein the cumulative charge of the anionic spacer peptide reduces the cumulative charge of the indolicidin analog.

41. (Currently Amended) The expression cassette according to claim 29 wherein ~~the fusion protein comprises from about 5 to about 30 indolicidin analogs~~ n has a value of between 5 and 30.

42. (Currently Amended) The expression cassette according to claim 29 wherein ~~the fusion protein comprises from about 10 to about 20 indolicidin analogs~~ n has a value of between 10 and 20.

43. (Cancelled)

44. (Previously Amended) The expression cassette according to any one of claims 1 or 29 wherein the indolicidin analog has up to 35 amino acids comprising the sequence of SEQ ID NO:35 or SEQ ID NO:36.

45. (Original) The expression cassette according to claim 29 wherein the cleavage site can be cleaved by low pH or by a reagent selected from cyanogen bromide, N-chlorosuccinimide, 2-(2-nitrophenylsulphenyl)-3-methyl-3'-bromoindolenine, hydroxylamine, o-iodosobenzoic acid, Factor Xa, Factor XIIa, thrombin, enterokinase, collagenase, *Staphylococcus aureus* V8 protease, endoproteinase Glu-C, endoproteinase Arg-C, endoproteinase Lys-C, chymotrypsin, trypsin, or a combination thereof.

46. (Cancelled)

47. (Previously Amended) A recombinant host cell comprising the expression cassette according to any one of claims 29, 37, 41, or 42.

48. (Original) The recombinant host cell of claim 47 wherein the host cell is a yeast, a fungus, a bacteria or a plant cell.

49. (Original) The recombinant host cell of claim 48 wherein the bacteria is *Escherichia coli*.

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50. (Currently Amended) A method of producing a fusion protein ~~that contains at least one indolicidin analog~~, comprising culturing the recombinant host cell of claim 47 under conditions and for a time sufficient to produce the fusion protein.

51. (Previously Amended) The expression cassette according to any one of claims 1, 2, 29, or 54 wherein the expression cassette is contained in an expression vector.

52. (Original) The recombinant host cell of claim 16 wherein the expression cassette is contained in an expression vector.

53. (Original) The recombinant host cell of claim 47 wherein the expression cassette is contained in an expression vector.

54. (Previously Added) The expression cassette according to claim 29 further consisting of one additional indolicidin analog or two additional indolicidin analogs, wherein the additional analog or analogs are at the carboxy-terminus of the encoded fusion protein.

55. (Previously Added) The expression cassette according to any one of claims 29 or 54 further comprising a carrier amino acid sequence wherein the carrier amino acid sequence is at the amino-terminus of the encoded fusion protein.

56. (Previously Added) The expression cassette according to any one of claims 1, 29, or 54 wherein the indolicidin analog is SEQ ID NO:36.

57. (Previously Added) The expression cassette according to claim 55 wherein the indolicidin analog is SEQ ID NO:36.

58. (Previously Added) The recombinant host cell according to claim 53 wherein the encoded indolicidin analog fusion protein is expressed as an insoluble protein.

59. (Previously Added) A recombinant host cell comprising the expression cassette according to claim 57 wherein the expression cassette is contained in an expression vector.

60. (Previously Added) A recombinant host cell comprising the expression cassette according to claim 58 wherein the expression cassette is contained in an expression vector.

61. (Previously Added) The recombinant host cell according to claim 59 wherein the encoded indolicidin analog fusion protein is expressed as an insoluble protein.

62. (Previously Added) The recombinant host cell according to claim 60 wherein the encoded indolicidin analog fusion protein is expressed as an insoluble protein.

E2
63. (Currently Amended) A method of producing a fusion protein ~~that contains at least one indolicidin analog~~, comprising culturing a recombinant host cell according to claim 59 under conditions and for a time sufficient to produce said fusion protein.

64. (Currently Amended) A method of producing a fusion protein ~~that contains at least one indolicidin analog~~, comprising culturing a recombinant host cell according to claim 60 under conditions and for a time sufficient to produce said fusion protein.

E8
65. (New) The method according to claim 63 wherein the fusion protein is further cleaved at the cleavage sites to release the indolicidin analogs from the anionic spacers.

66. (New) The method according to claim 65 wherein the fusion protein is cleaved by endoproteinase Lys-C.

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67. (New) The method according to claim 65 wherein the released indolicidin analogs are further amidated at the carboxy-terminus.